
GEOTECHNICAL
SECTION

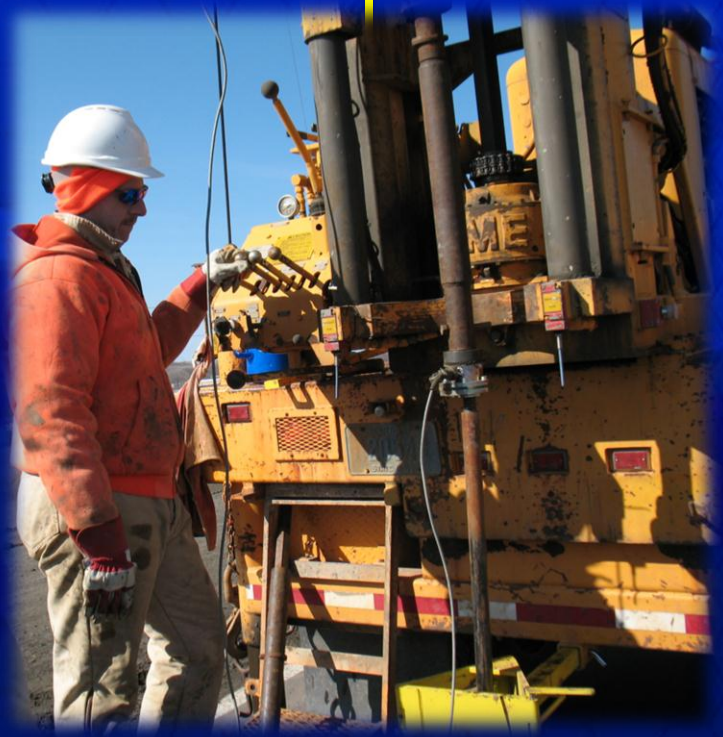
Geotechnical Section

Philosophy & Approach

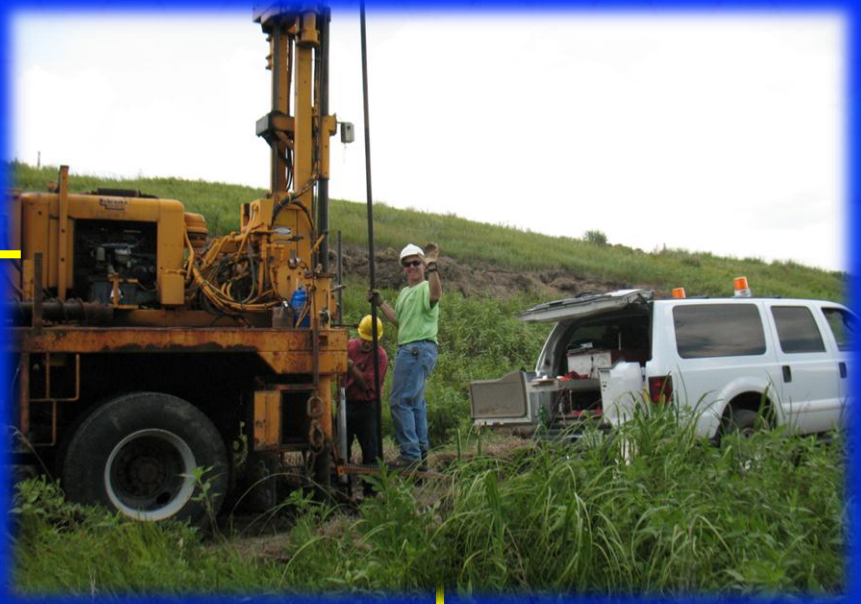
The Geotechnical Section's mission is to provide soil and rock design and testing information through all the phases of the development of NDOR projects. The Geotechnical field is at times not as predictable as other engineering fields and relies heavily on knowledge of standard practices and methods and experience. We perform subsurface investigations and provide economical and practical foundation system designs for bridges, embankments, and pavements. In a field of increasing technology and changes we are always looking for opportunities to improve upon our existing practices to provide the best designs and lab information for our customers. Our testing labs set the standard and provide soil and aggregate information for preliminary design and during construction. We also provide guidance and recommendations during the construction phase of projects. The work performed in our section is performed to a high standard with pride.

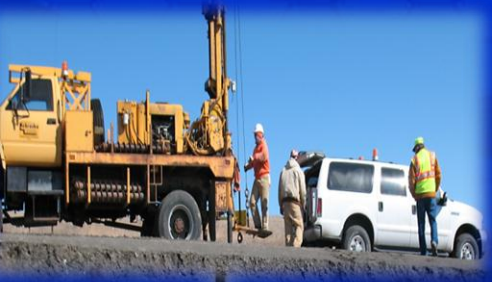
Soil Laboratory Testing

The electronic Cone Penetration Test (CPT) is a form of geotechnical testing in which a cone and a sleeve are attached to a rod and is hydraulically pushed continuously into the ground. The CPT measures the stiffness of the soil to identify soil type and water pressure. No borehole is needed and no cuttings are produced during this operation. There are currently many CPT correlations for engineering properties of soils, but many of these correlations do not work well with Nebraska soil types. The CPT is very quick compared to standard soil borings and allows the user to obtain undisturbed soil data in the ground. The Geotechnical Section will perform a study to determine how CPT results correlate with other field tests and actual laboratory test data and how the CPT data can be applied to Geotechnical Engineering design for NDOR.

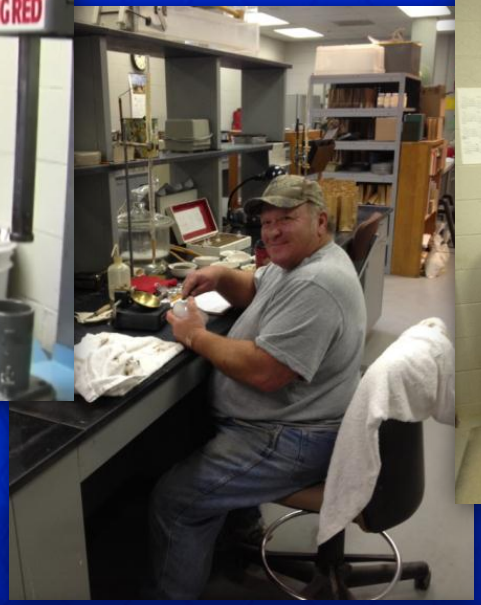


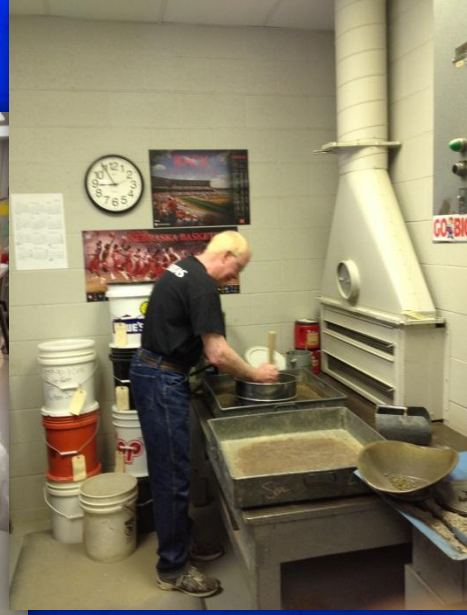
Field Soil Testing

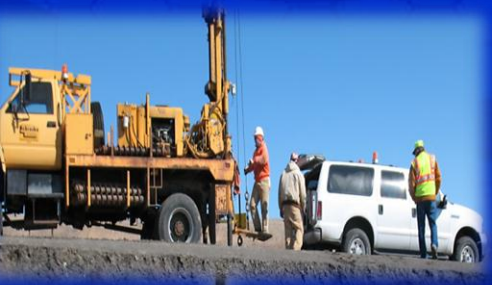




Field Soil Testing

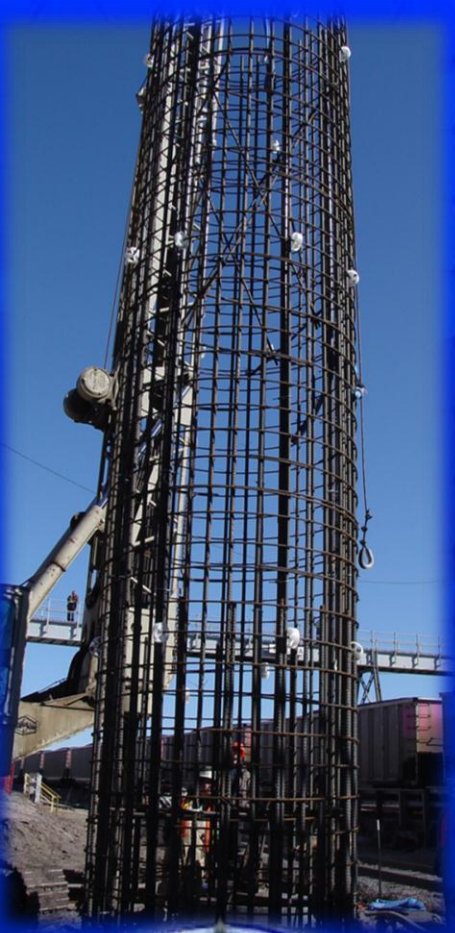


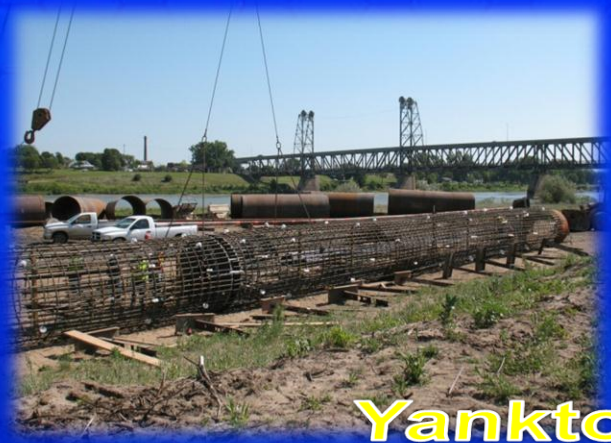




Laboratory Soil Testing

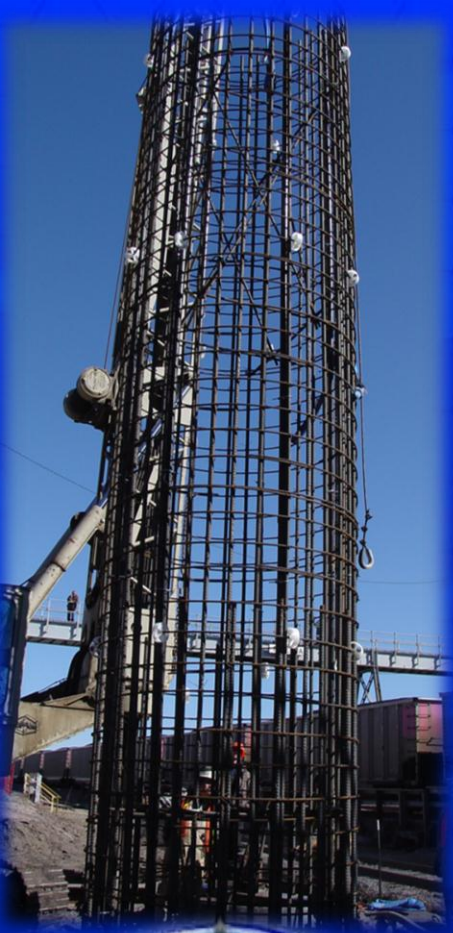
Drilled Shaft





Yankton Bridge

Drilled Shaft



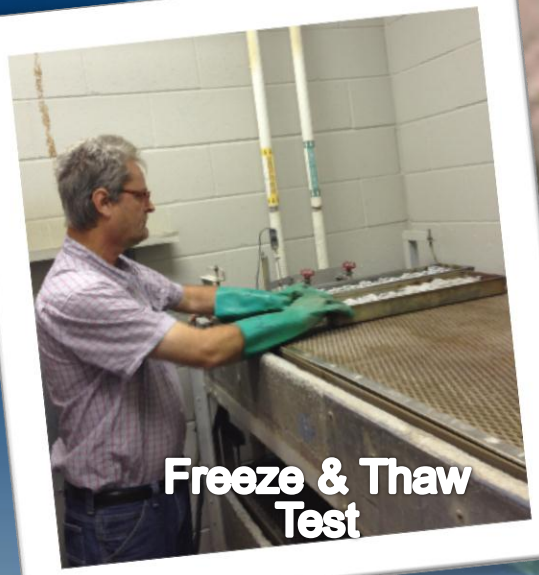
Columbus Viaduct

Drilled Shaft

Aggregate Testing Lab


Specific Gravity Testing


Fine Aggregate Angularity Testing

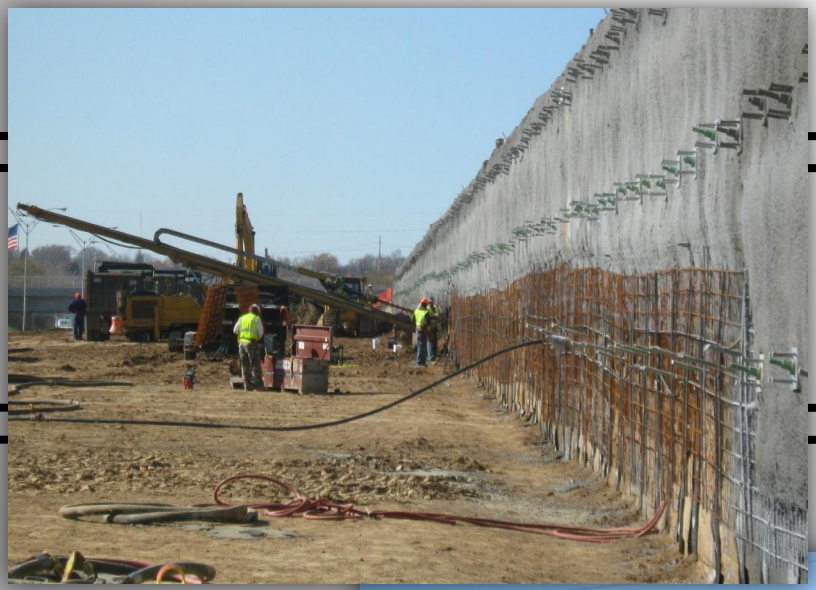

Freeze & Thaw Test

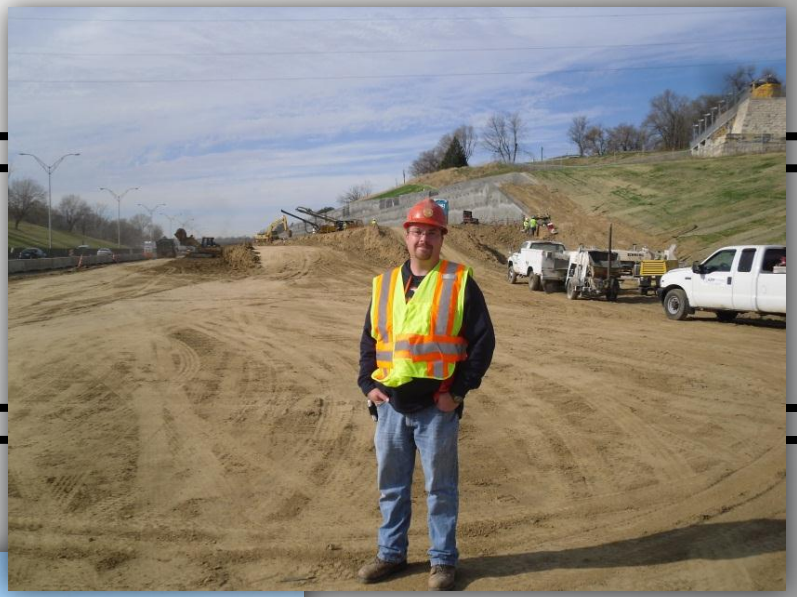

Weight Retain Sieve Measurement

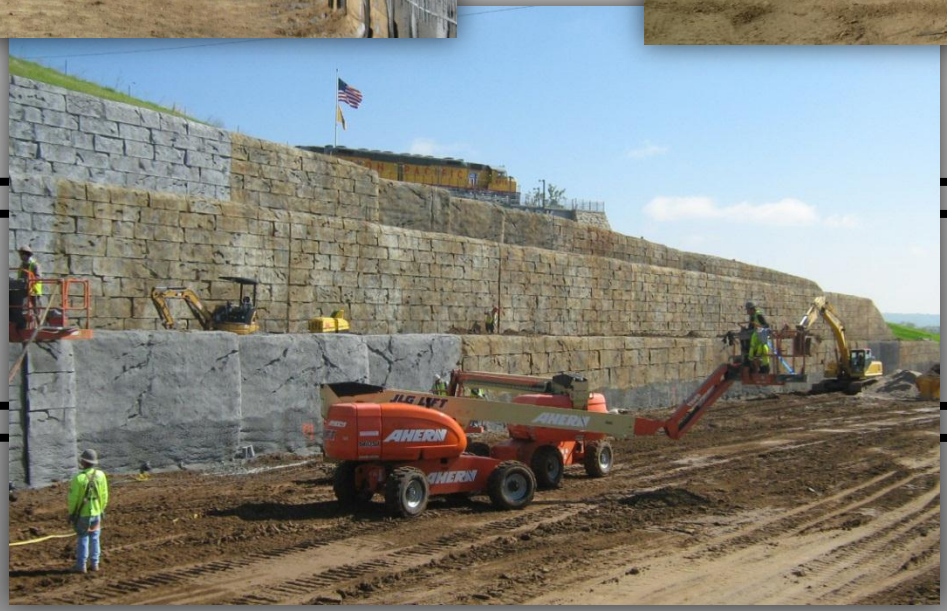
Field Work

Compaction Grouting

Field Work

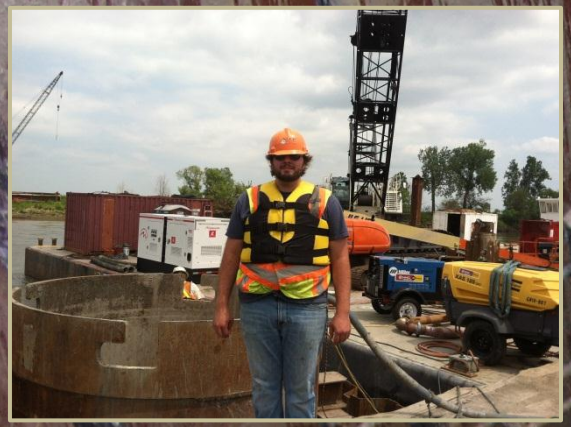


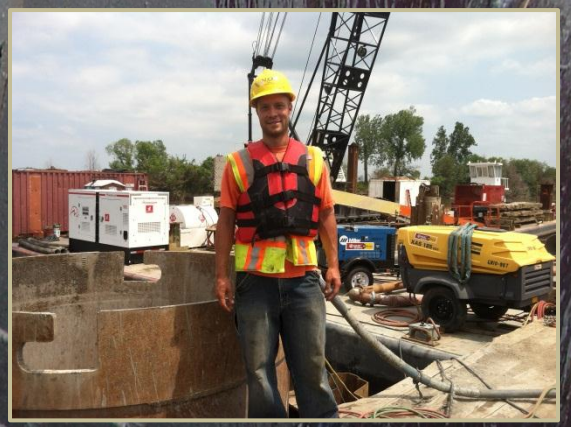


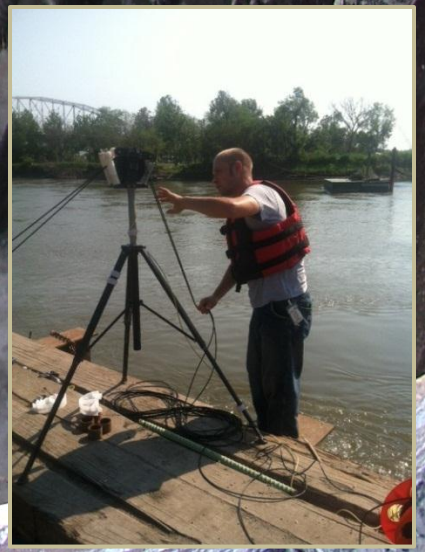


Nail Wall

FIELD WORK







FIELD WORK